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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,156	12/10/2003	Seisho Yasukawa	246405US2	4793

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EXAMINER	
NGUYEN, TOAN D	

ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
09/07/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/731,156	YASUKAWA ET AL.	
	Examiner	Art Unit	
	Toan D. Nguyen	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/10/04,5/24/04,3/14/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 5-7, and 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sheu et al., (IEEEICC, page 611-618, "A Fast And Efficient Heuristic Algorithm For The Delay-And Delay Variation Bound Multicast Tree Problem", 2001).

For claim 1, Sheu et al. disclose a fast and efficient heuristic algorithm for the delay-and delay variation bound multicast tree problem, comprising the steps of:

obtaining minimum delay paths from the source node to each of the destination nodes by using topology information and delay information of the network (page 613, section 3.1. The Basic concept of DDVCA, lines 23-32);

selecting, as candidate nodes of a rendezvous point node, nodes on one of the obtained minimum delay paths (page 614, lines 15-19);

for each of the candidate nodes, calculating minimum delay paths from the candidate node to each of the destination nodes, and obtaining a difference between the maximum value and the minimum value among delays of the calculated minimum

delay paths (page 614, second column, lines 2-5, and figure 3, page 614, line 18 to page 615, line 5);

selecting, as the rendezvous point node, the candidate node for which the difference is smallest among differences for all of the candidate nodes (Table 1, page 615, lines 15-17); and

outputting, as the multicast paths, a minimum delay path from the source node to the rendezvous point node and minimum delay paths from the rendezvous point node to each destination node (page 614, lines 20-24, and page 615, lines 18-19).

For claim 2, Sheu et al. disclose wherein the minimum delay path on which the candidate nodes exist is one having maximum delay among minimum delay paths from the source node to each of the destination nodes (page 614, second column, Table 1, line 27 to page 615, line 5).

For claim 5, Sheu et al. disclose a fast and efficient heuristic algorithm for the delay-and delay variation bound multicast tree problem, comprising the steps of:

a part for obtaining minimum delay paths from the source node to each of the destination nodes by using topology information and delay information of the network (page 613, section 3.1. The Basic concept of DDVCA, lines 23-32);

a part for selecting, as candidate nodes of a rendezvous point node, nodes on one of the obtained minimum delay paths (page 614, lines 15-19);

a part for calculating, for each of the candidate nodes, minimum delay paths from the candidate node to each of the destination nodes, and obtaining, for each of the candidate nodes, a difference between the maximum value and the minimum value

among delays of the calculated minimum delay paths (page 614, second column, lines 2-5, and figure 3, page 614, line 18 to page 615, line 5);

a part for selecting, as the rendezvous point node, the candidate node for which the difference is smallest among the differences for all of the candidate nodes (Table 1, page 615, lines 15-17); and

a part for outputting results comprising, as the multicast paths, a minimum delay path from the source node to the rendezvous point node and minimum delay paths from the rendezvous point node to each of the destination nodes (page 614, lines 20-24, and page 615, lines 18-19).

For claim 6, Sheu et al. disclose wherein the minimum delay path on which the candidate nodes exist is one having maximum delay among minimum delay paths from the source node to each of the destination nodes (page 614, second column, Table 1, line 27 to page 615, line 5).

For claim 7, Sheu et al. disclose further comprising:

a part for receiving the topology information and the delay information of the network (section 3.2. A format description of DDVCA, page 614, lines 2-9); and

a part for storing the received information in a recording medium,

wherein the multicast communication path calculation apparatus calculates the multicast paths by reading the received information from the recording medium (section 3.2. A format description of DDVCA, page 614, line 10 to second column, line 5).

For claim 10, Sheu et al. disclose a fast and efficient heuristic algorithm for the delay-and delay variation bound multicast tree problem, comprising the steps of:

program code means for obtaining minimum delay paths from the source node to each of the destination nodes by using topology information and delay information of the network (page 613, section 3.1. The Basic concept of DDVCA, lines 23-32);

program code means for selecting, as candidate nodes of a rendezvous point node, nodes on one of the obtained minimum delay paths (page 614, lines 15-19);

program code means for calculating, for each of the candidate nodes, minimum delay paths from the candidate node to each of the destination nodes, and obtaining, for each of the candidate nodes, a difference between the maximum value and the minimum value among delays of the calculated minimum delay paths

program code means for selecting, as the rendezvous point node, the candidate node for which the difference is smallest among the differences for each of the candidate nodes (Table 1, page 615, lines 15-17); and

program code means for outputting results comprising, as the multicast paths, a minimum delay path from the source node to the rendezvous point node and minimum delay paths from the rendezvous point node to each of the destination nodes (page 614, lines 20-24, and page 615, lines 18-19).

For claim 11, Sheu et al. disclose wherein the minimum delay path on which the candidate nodes exist is one having maximum delay among minimum delay paths from the source node to each of the destination nodes (page 614, second column, Table 1, line 27 to page 615, line 5).

For claim 12, Sheu et al. disclose a fast and efficient heuristic algorithm for the delay-and delay variation bound multicast tree problem, comprising the steps of:

program code means for obtaining minimum delay paths from the source node to each of the destination nodes by using topology information and delay information of the network (page 613, section 3.1. The Basic concept of DDVCA, lines 23-32);

program code means for selecting, as candidate nodes of a rendezvous point node, nodes on one of the obtained minimum delay paths (page 614, lines 15-19);

program code means for calculating, for each of the candidate nodes, minimum delay paths from the candidate node to each of the destination nodes, and obtaining, for each of the candidate nodes, a difference between the maximum value and the minimum value among delays of the calculated minimum delay paths

program code means for selecting, as the rendezvous point node, the candidate node for which the difference is smallest among the differences for each of the candidate nodes (Table 1, page 615, lines 15-17); and

program code means for outputting results comprising, as the multicast paths, a minimum delay path from the source node to the rendezvous point node and minimum delay paths from the rendezvous point node to each of the destination nodes (page 614, lines 20-24, and page 615, lines 18-19).

For claim 13, Sheu et al. disclose wherein the minimum delay path on which the candidate nodes exist is one having maximum delay among minimum delay paths from the source node to each of the destination nodes (page 614, second column, Table 1, line 27 to page 615, line 5).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3-4, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheu et al., (IEEEICC, page 611-618, "A Fast And Efficient Heuristic Algorithm For The Delay-And Delay Variation Bound Multicast Tree Problem", 2001).

For claim 3, Sheu et al. disclose a fast and efficient heuristic algorithm for the delay-and delay variation bound multicast tree problem, comprising the steps of:

obtaining minimum delay paths from the source node to each of the destination nodes by using topology information and delay information of the network (page 613, section 3.1. The Basic concept of DDVCA, lines 23-32);

selecting, as candidate nodes of a rendezvous point node, nodes on one of the obtained minimum delay paths (page 614, lines 15-19);

for each of the candidate nodes, calculating minimum delay paths from the candidate node to each of the destination nodes, and obtaining a difference between the maximum value and the minimum value among delays of the calculated minimum delay paths (page 614, section 3.2. A formal description of DDVCA, second column, lines 2-5, and figure 3, line 18 to page 615, line 5);

selecting, as the rendezvous point node, the candidate node for which the difference is smallest among differences for all of the candidate nodes (Table 1, page 615, lines 15-17); and

outputting results comprising, as the multicast paths, a minimum delay path from the source node to the rendezvous point node and minimum delay paths from the rendezvous point node to each destination node (page 614, lines 20-24, and page 615, lines 18-19).

However, Sheu et al. do not expressly disclose wherein the multicast communication path calculation apparatus sends the output results to the multicast communication path setting apparatus, and the multicast communication path setting apparatus establishes the multicast paths according to the output results. To include the multicast communication path calculation apparatus sends the output results to the multicast communication path setting apparatus, and the multicast communication path setting apparatus establishes the multicast paths according to the output results would have been obvious to one of ordinary skill in the art because Sheu et al. disclose on page 614, lines 15-16 "DDVCA first calculates (path calculation apparatus means) the minimum delay between each destination node and each other node in the network."

Sheu et al. further disclose on page 614, lines 24-25, "Intuitively, the multicast delay variation of thus formed (setting apparatus means) multicast tree ..."

For claim 4, Sheu et al. disclose wherein each node in the network measures traffic state of the network and sends the measurement results to the multicast communication path calculation apparatus, and the multicast communication path calculation apparatus calculates the multicast paths according to the measurement results (page 614, second column, lines 18-27).

For claim 8, Sheu et al. disclose further comprising a part for including the output results in a multicast path setting control message, and sending the multicast path setting control message over the multicast paths indicated by the output results (page 614, lines 24-25).

For claim 9, Sheu et al. disclose further comprising:

a part for receiving a request to calculate the multicast paths from a multicast communication path setting apparatus (section 3.2. A formal description of DDVCA, page 614, line 2 to second column, line 1); and

a part for sending the output results to the multicast communication path setting apparatus (page 614, lines 24-25).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D. Nguyen whose telephone number is 571-272-3153. The examiner can normally be reached on M-F (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TN

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